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DATE: June 19, 2008

TO: Giovanna B. Colan – United States Patent and Trademark Office

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FROM: Francis L. Dunn, Jr.

RE: DRAFT – MEETING AGENDA

In re patent application of:

Applicant(s): David M. Bargeron *et al.*	Examiner: Giovanna B. Colan
Serial No: 10/758,370	Art Unit: 2162
Filing Date: January 15, 2004	

Title: IMAGE-BASED DOCUMENT INDEXING AND RETRIEVAL

NUMBER OF PAGES TO FOLLOW: 7

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To Examiner Colan:

Here is a copy of proposed items of discussion for the phone interview I would like to schedule with you. Applicants' representative thanks the Examiner with regard to the Examiner indicating that claims 24-32 stand allowed.

There are certain issues that I would like to get your input on to overcome the rejections under 35 U.S.C. §§ 101 and 103:

(1) Proposed amendments to independent claims 1, 33, 38, 39, and 40. (*See* proposed amendments to claims 1, 33, 38, 39, 40, included hereinbelow.) It is submitted that the proposed amendments overcome the cited art, particularly in view of the Examiner indicating that claims 24-32 stand allowed. It is also submitted that the proposed amendments overcome the rejection under 35 U.S.C. § 103.

If you have any other suggestions or ideas, I would be glad to discuss them as well. I look forward to speaking with you. Thank you again for your time and consideration.

Regards,
Francis

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DRAFT – PROPOSED CLAIMS

1.   (Currently amended) A machine-implemented system for document retrieval and/or indexing comprising:

a component that receives a captured image of at least a portion of a physical document;

a search component that locates a match to the physical document, the search is performed over word-level topological properties of generated images, the word-level topological properties comprise at least respective widths of words on the generated images, and the generated images being images of at least a portion of one or more electronic documents; and

a comparison component that iteratively compares a portion of a signature associated with the captured image based at least in part on word-level topological properties with corresponding portions of signatures respectively associated with the generated images based at least in part on word-level topological properties and excludes each generated image whose portion of the signature does not match the portion of the signature of the captured image to facilitate location of a match to the physical document,

the portion of the signature associated with the captured image and the portion of the signatures respectively associated with the generated images that are compared become progressively smaller with each iteration, where one or more iterations are performed until a predetermined threshold number of generated images remain,

wherein each portion of signature respectively associated with a generated image is a hash table that contains a plurality of table locations where a respective value corresponding to a respective segment of the generated image is entered into a respective table location for each segment of the generated image, and

wherein the portion of the signature associated with the captured image is a hash table that contains a plurality of table locations where a respective value corresponding to a respective segment of the captured image is entered into a respective table location for each segment of the captured image.

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33.   (Currently amended) A <u>machine-implemented</u> system for indexing and/or retrieval of a document, comprising:

means for generating an image of an electronic document when the electronic document is printed;

means for capturing an image of the document after the document has been printed;

means for generating a signature corresponding with the generated image;

means for generating a signature corresponding to the captured image;

means for storing the electronic document;

means for iteratively comparing location of respective words and width of respective words within a portion of a signature associated with the captured image to the location of respective words and width of respective words within respective portions of signatures associated with the generated images and excluding each generated image whose signature portion does not match the signature portion of the captured image,

the portion of the signature associated with the captured image and the corresponding portions of the signatures respectively associated with the generated images that are compared become progressively smaller with each iteration, where one or more iterations are performed until a predetermined threshold number of generated images remain,

<u>wherein each portion of signature respectively associated with a generated image is a hash table that contains a plurality of table locations where a respective value corresponding to a respective segment of the generated image is entered into a respective table location for each segment of the generated image, and</u>

<u>wherein the portion of the signature associated with the captured image is a hash table that contains a plurality of table locations where a respective value corresponding to a respective segment of the captured image is entered into a respective table location for each segment of the captured image</u>; and

means for retrieving the electronic document.

38.   (Currently amended) A machine-implemented system that facilitates indexing and/or retrieval of a document, comprising:

a query component that receives an image of a printed document;

a caching component that generates and stores an image corresponding to the image of the printed document prior to the query component receiving the image of the printed document; and

a comparison component that determines and retrieves the stored image *via* comparing location of words and width of words within the stored image to location of words and width of words within the received image of the printed document,

the comparison component iteratively compares a portion of a signature associated with the received image with corresponding portions of signatures respectively associated with the stored images and excludes each stored image whose signature does not match the signature of the received image to facilitate identification of a match to the printed document,

the portion of the signature associated with the received image and the portion of the signatures respectively associated with the stored images that are compared become progressively smaller with each iteration, where one or more iterations are performed until a predetermined threshold number of signatures associated with stored images remain,

wherein location of words and width of words within at least a portion of a stored image is represented as a portion of a signature of the stored image, and location of words and width of words within at least a portion of the received image of the printed document is represented as a portion of a signature of the received image,

wherein each portion of signature respectively associated with a stored image is a hash table that contains a plurality of table locations where a respective value corresponding to a respective segment of the stored image is entered into a respective table location for each segment of the stored image, and

wherein the portion of the signature associated with the received image is a hash table that contains a plurality of table locations where a respective value corresponding to a respective segment of the received image is entered into a respective table location for each segment of the received image.

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39.   (Currently amended) A computer readable medium having computer executable instructions stored thereon to:

return at least one stored image of an electronic document to a user based at least in part upon topological word properties of at least one captured image corresponding to the electronic document[[,]]: and

an iterative comparison of a portion of a signature associated with the at least one captured image with corresponding portions of signatures respectively associated with the at least one stored image and excludes each stored image whose signature does not match the signature of the at least one captured image to facilitate identification of a match to the electronic document,

the portion of the signature associated with the at least one captured image and the portion of the signatures respectively associated with the at least one stored image that are compared become progressively smaller with each iteration, where one or more iterations are performed until a predetermined threshold number of signatures associated with the at least one stored image remains, wherein the topological word properties comprise at least width of respective words,

wherein the portion of the signature associated with the at least one captured image is based at least in part on topological word properties of a corresponding portion of the at least one captured image, and the portion of signature associated with the at least one stored image is based at least in part on topological word properties of a corresponding portion of the at least one stored image,

wherein each portion of a signature respectively associated with a stored image is a hash table that contains a plurality of table locations where a respective value corresponding to a respective segment of the stored image is entered into a respective table location for each segment of the stored image, and

wherein the portion of the signature associated with the captured image is a hash table that contains a plurality of table locations where a respective value corresponding to a respective segment of the captured image is entered into a respective table location for each segment of the captured image.

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40.   (Currently amended) A computer readable medium having a data structure thereon, the data structure comprising:

a component that receives image(s) of at least a portion of a printed document; and

a search component that facilitates retrieval of an electronic document, the electronic document corresponding to the image(s) associated with the printed document, the retrieval based at least in part upon corresponding word-level topological properties when comparing the image(s) associated with the printed document and generated image(s) of the electronic document, the word-level topological properties comprise at least width of words; and

a comparison component that is associated with the search component and iteratively compares a portion of a signature associated with the received image associated with the printed document with corresponding portions of signatures respectively associated with the generated images and excludes each generated image whose signature does not match the signature of the received image associated with the printed document to facilitate location of a match to the printed document,

the portion of the signature associated with the received image associated with the printed document and the portion of the signatures respectively associated with the generated images that are compared become progressively smaller with each iteration, where one or more iterations are performed until a predetermined threshold number of signatures associated with generated images remain,

wherein the portion of the signature associated with the received image is based at least in part on word-level topological properties of a corresponding portion of the received image, and portions of signature respectively associated with the generated images is based at least in part on word-level topological properties of corresponding portions of the generated images,

wherein each portion of a signature respectively associated with a generated image is a hash table that contains a plurality of table locations where a respective value corresponding to a respective segment of the generated image is entered into a respective table location for each segment of the generated image, and

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wherein the portion of the signature associated with the received image is a hash table that contains a plurality of table locations where a respective value corresponding to a respective segment of the received image is entered into a respective table location for each segment of the received image.